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10/751,309	12/31/2003	Nagesh K. Vodrahalli	ITS.0008US (P17998)	8796

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EXAMINER

STAHL, MICHAEL J

ART UNIT PAPER NUMBER

2874

DATE MAILED: 03/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/751,309

Applicant(s)

VODRAHALLI ET AL.

Examiner

Mike Stahl

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 09 January 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-4, 6-15 and 18-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-15 and 18-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 3-4, 8-10, 14-15, and 18-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 3 is indefinite because it refers to “said third wavelength” but no third wavelength is recited in parent claim 1 as amended.

Claim 4 is indefinite because it refers to “said at least two wavelengths” but its parent claim 1 as amended refers only to “at least one wavelength”.

Claim 8 is indefinite because it refers to “said reflector” but no reflector is recited in its parent claims 1 or 6 as amended.

Claim 9 is indefinite by dependence from claim 8, and also by trying to further limit “said reflector” which no longer exists in its parent claims 1, 6, or 8 as amended.

Claim 10 is indefinite by dependence from claim 8.

Claim 14 is indefinite because it refers to “said multiplexer” but no multiplexer is recited in parent claim 12 as amended.

Claim 15 is indefinite by dependence from claim 14.

Claim 18 is indefinite because it refers to “said multiplexer” but no multiplexer is recited in parent claim 12 as amended.

Claims 19-20 are indefinite by dependence from claim 18.

As the scope of claims 3-4, 8-10, 14-15, and 18-20 is not clear, no further treatment of these claims with regard to the prior art will be made in this Office action.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 6, 7, and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Fan et al. (US 6495813, previously cited).

Claim 1: Fan discloses a method comprising: demultiplexing at least one wavelength from a multiplexed optical signal; and detecting said demultiplexed wavelength using an L-shaped detector. The detector has an L-shaped body 43 (top view in fig. 7 or cross sectional views through each branch in figs. 6a-6b). The detector array structure includes a color filter 54 (figs. 5, 6a, 6b) which demultiplexes light of one wavelength (green in the exemplary embodiment) and passes it to the detector.

Claim 6: Substrate 40 is regarded as an electrooptical bench.

Claim 7: A trench is provided in the bench to receive a portion of the L-shaped detector (figs. 5-7).

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Claim 11: Electrical connections are formed from the bench to a portion of the L-shaped detector (fig. 5).

Claims 1-2 are rejected under 35 U.S.C. 102(e) as being anticipated by Takagi et al. (US 6979136).

Claim 1: Takagi discloses a method comprising: demultiplexing at least one wavelength  $\lambda_A$  from a multiplexed optical signal; and detecting said demultiplexed wavelength using an L-shaped detector (fig. 17). The detector has an L-shaped body including a detecting portion 2 integrated with a base 63 (figs. 20A-B; col. 5 ln. 61 – col. 6 ln. 2).

Claim 2: The method includes providing an angled reflector 5 in the path of the multiplexed signal to reflect light of a first wavelength ( $\lambda_B$ ) to a first detector 3 and to pass light of a second wavelength ( $\lambda_A$ ).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out

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the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takagi et al. (cited above).

Claim 12: Takagi discloses an optical system (fig. 17) comprising: a waveguide 11; and a demultiplexer coupled to the waveguide to demultiplex at least one wavelength from a multiplexed optical signal on the waveguide, the demultiplexer including a photodetector 2 to detect the wavelength, and an L-shaped detector (figs. 20A-B). Takagi does not specifically disclose a reflector integrated with the L-shaped photodetector, the reflector passing a wavelength to be detected. In a wavelength demultiplexing arrangement such as the one shown in Takagi, it is known in the art that a single filter such as 5 will pass predominantly the desired wavelength but will also pass smaller amounts of other wavelengths (i.e. its wavelength isolation is not perfect). A conventional remedy for this problem is to use a secondary or “cleanup” filter designed to pass the same desired wavelength. Accordingly it would have been obvious to a skilled person to integrate an additional filter with the photodetector in order to supplement filter 5 and obtain a higher isolation of wavelength  $\lambda_A$ .

Claim 13: The demultiplexer includes an angled reflector 5 to reflect light of a first wavelength to a first detector and to pass light of a second wavelength.

***Conclusion***

Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

The additional references listed on the attached PTO-892 form are considered relevant to the subject matter of this application. In particular, US 6188816 discloses the use of cleanup filters in a demultiplexer, and US 5305009 discloses an example of an optically fed phased array antenna mentioned in the background of the previously cited Langley reference.


Inquiries about this letter should be directed to Mike Stahl at 571-272-2360. Inquiries of a general or clerical nature (e.g., a request for a missing form or paper, etc.) should be directed to the technical support staff supervisor at 571-272-1626. Official communications which are eligible for submission by facsimile and which pertain to this application may be faxed to 571-

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273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mike Stahl *MDS*  
Patent Examiner  
Art Unit 2874

March 22, 2006

  
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